

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A potato tuber comprising water-soluble protein at a concentration of at least 5 mg/ml.
2. A potato tuber of Claim 1 comprising water-soluble protein at a concentration of at least 7 mg/ml.
3. A potato tuber of Claim 1 comprising water-soluble protein at a concentration of at least 10 mg/ml.
4. A potato tuber of Claim 1 comprising water-soluble protein at a concentration of at least 20 mg/ml.
5. A potato tuber of Claim 1 comprising proteinase Inhibitor I at a concentration of at least 500 μ g/ml, and proteinase Inhibitor II at a concentration of at least 800 μ g/ml.
6. A potato tuber of Claim 1 comprising proteinase Inhibitor I at a concentration of at least 750 μ g/ml, and proteinase Inhibitor II at a concentration of at least 1000 μ g/ml.
7. A potato tuber of Claim 1 comprising proteinase Inhibitor I at a concentration of at least 1000 μ g/ml, and proteinase Inhibitor II at a concentration of at least 1200 μ g/ml.
8. A potato tuber of Claim 1 comprising an exogenous nucleic acid molecule that encodes a systemin molecule, said nucleic acid molecule hybridizing to a nucleic acid molecule consisting of the sequence set forth in SEQ ID NO:4 under conditions of 5 X SSC at 55°C for 30 minutes.
9. A potato tuber of Claim 8 wherein said systemin molecule consists of the amino acid sequence set forth in SEQ ID NO:1.

10. A potato tuber of Claim 1 comprising an exogenous nucleic acid molecule that encodes a systemin molecule, said nucleic acid molecule hybridizing to the complement of a nucleic acid molecule consisting of the sequence set forth in SEQ ID NO:2 under conditions of 1 X SSC at 50°C for 30 minutes.

11. A potato tuber of Claim 1 comprising an exogenous nucleic acid molecule that encodes a systemin molecule, said nucleic acid molecule hybridizing to the complement of a nucleic acid molecule consisting of the sequence set forth in SEQ ID NO:2 under conditions of 0.5 X SSC at 50°C for 30 minutes.

12. A potato tuber of Claim 10 wherein said systemin molecule consists of the amino acid sequence set forth in SEQ ID NO:1.

13. A potato tuber of Claim 1 comprising an exogenous nucleic acid molecule that encodes a prosystemin molecule, said nucleic acid molecule hybridizing to the complement of the nucleic acid molecule consisting of the sequence set forth in SEQ ID NO:2 under conditions of 1 X SSC at 50°C for 30 minutes.

14. A potato tuber of Claim 1 comprising an exogenous nucleic acid molecule that encodes a prosystemin molecule, said nucleic acid molecule hybridizing to the complement of the nucleic acid molecule consisting of the sequence set forth in SEQ ID NO:2 under conditions of 0.5 X SSC at 50°C for 30 minutes.

15. A potato tuber of Claim 13 wherein said prosystemin molecule consists of the amino acid sequence set forth in SEQ ID NO:3.

16. A potato tuber comprising an exogenous nucleic acid molecule that encodes a systemin molecule, said nucleic acid molecule hybridizing under conditions of 5 X SSC at 55°C for 30 minutes to a nucleic acid molecule consisting of the nucleic acid sequence set forth in SEQ ID NO:4.

17. A potato tuber comprising an exogenous nucleic acid molecule that encodes a systemin molecule, said nucleic acid molecule hybridizing to the complement of a nucleic acid molecule consisting of the sequence set forth in SEQ ID NO:2 under conditions of 1 X SSC at 50°C for 30 minutes.

18. A potato tuber of Claim 17 wherein said nucleic acid molecule hybridizes to the complement of a nucleic acid molecule consisting of the sequence set forth in SEQ ID NO:2 under conditions of 0.5 X SSC at 50°C for 30 minutes.

19. A potato tuber comprising an exogenous nucleic acid molecule that encodes a prosystemin molecule, said nucleic acid molecule hybridizing under conditions of 1 X SSC at 50°C for 30 minutes to the complement of a nucleic acid molecule consisting of the nucleic acid sequence set forth in SEQ ID NO:2.

20. A potato tuber of Claim 19 wherein said nucleic acid molecule hybridizes under conditions of 0.5 X SSC at 50°C for 30 minutes to the complement of a nucleic acid molecule consisting of the nucleic acid sequence set forth in SEQ ID NO:2.

21. A method of increasing the amount of water-soluble protein in a potato tuber, the method comprising the step of expressing an exogenous systemin molecule in a potato tuber, whereby the synthesis of at least one water-soluble protein is induced by the exogenous systemin molecule.

22. The method of Claim 21 wherein said systemin molecule is at least 70% identical to a systemin molecule consisting of the amino acid sequence set forth in SEQ ID NO:1.

23. The method of Claim 21 wherein said systemin molecule is at least 80% identical to a systemin molecule consisting of the amino acid sequence set forth in SEQ ID NO:1.

24. The method of Claim 21 wherein said systemin molecule is at least 90% identical to a systemin molecule consisting of the amino acid sequence set forth in SEQ ID NO:1.

25. The method of Claim 21 wherein said systemin molecule is at least 95% identical to a systemin molecule consisting of the amino acid sequence set forth in SEQ ID NO:1.

26. The method of Claim 21 wherein the systemin molecule consists of an amino acid sequence selected from the group of amino acid sequences consisting of SEQ ID NO:1, SEQ ID NO:5, and SEQ ID NO:6.

27. The method of Claim 21 wherein the systemin molecule consists of the amino acid sequence set forth in SEQ ID NO:1.

28. The method of Claim 21 wherein the systemin molecule is encoded by an exogenous nucleic acid molecule that hybridizes under conditions of 5 X SSC at 55°C for 30 minutes to a nucleic acid molecule consisting of the nucleic acid sequence set forth in SEQ ID NO:4.

29. The method of Claim 21 wherein the systemin molecule is encoded by an exogenous nucleic acid molecule that hybridizes under conditions of 1 X SSC at 50°C for 30 minutes to the complement of a nucleic acid molecule consisting of the nucleic acid sequence set forth in SEQ ID NO:2.

30. The method of Claim 21 wherein the systemin molecule is encoded by an exogenous nucleic acid molecule that hybridizes under conditions of 0.5 X SSC at 50°C for 30 minutes to the complement of a nucleic acid molecule consisting of the nucleic acid sequence set forth in SEQ ID NO:2.

31. The method of Claim 21 wherein the amount of water-soluble protein in the potato tuber treated in accordance with the method of Claim 21 is at least 5 mg/ml.

32. The method of Claim 21 wherein the amount of water-soluble protein in the potato tuber treated in accordance with the method of Claim 21 is at least 7 mg/ml.

33. The method of Claim 21 wherein the amount of water-soluble protein in the potato tuber treated in accordance with the method of Claim 21 is at least 10 mg/ml.

34. The method of Claim 21 wherein the amount of water-soluble protein in the potato tuber treated in accordance with the method of Claim 21 is at least 20 mg/ml.

35. The method of Claim 21 wherein the synthesis of proteinase inhibitor I and proteinase inhibitor II is induced by the exogenous systemin molecule.

36. The method of Claim 35 wherein the amount of proteinase inhibitor I in the potato tuber is at least 500 $\mu\text{g/ml}$, and the amount of proteinase inhibitor II in the potato tuber is at least 800 $\mu\text{g/ml}$.

37. The method of Claim 35 wherein the amount of proteinase inhibitor I in the potato tuber is at least 750 $\mu\text{g/ml}$, and the amount of proteinase inhibitor II in the potato tuber is at least 1000 $\mu\text{g/ml}$.

38. The method of Claim 35 wherein the amount of proteinase inhibitor I in the potato tuber is at least 1000 $\mu\text{g/ml}$, and the amount of proteinase inhibitor II in the potato tuber is at least 1200 $\mu\text{g/ml}$.